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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/823,214

04/12/2004

Zhigan Wu

JCLA12708

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7590

12/28/2005

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EXAMINER

MCCLLOUD, RENATA D

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/823,214	WU ET AL.	
	Examiner	Art Unit	
	Renata McCloud	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 5-6,8,9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not describe how the method can be terminated if there is one more step (the step of resetting the frequency) remaining in the method.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-6,8,9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 3: the limitation "wherein a non-inverting input is connected via a single direction switch to a free end of a phase at a cathode end" is indefinite. It is unclear as to what the "non-inverting input" belongs to. Does it belong to the comparator or the winding? IF it belongs to the comparator, the limitation makes the comparator seem to have three inputs: the "one input", the "another input" and the "non-inverting input". Also it is unclear what the "cathode end" belongs to. Does it belong to the non-inverting input, the switch, or the phase?.

Claim 5: The claim is indefinite and unclear. It is unclear how the method can be terminated if there is one more step (the step of resetting the frequency) remaining in the method. It is unclear how a method is terminated when it has not been completed. It is unclear how the frequency can be reset if the method has been terminated and there is no step that initiates the restarting of the method. In other words by adding the limitation "terminating the method", it makes the claim unclear as to how a "method" can be terminated, when the claimed method has not yet been fully established/claimed. When the step was dependent claim 7, the claim made sense, being that the step of terminating was being added to the end of method of claim 5, which had already been established.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Bourgeois et al (US 5859520).

Claims 1 and 3: A circuit comprising: a plurality of windings (Fig. 5:A,B,C), each of the windings having a first end connected at common node (N) and each of the windings having a second end connectable directly to supply voltages by switches (XSA, XGC), the second end connected to an upper supply voltage (Vs); blocking circuitry (D4, D5, R) connectable with the second ends, the blocking circuitry producing a blocked voltage, the blocked voltage representing a voltage across an associated winding (col. 8:48-63, claim8); a comparator (P)

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receiving the blocked voltage on one input and a reference voltage on another input, the comparator result indicating polarity of a back emf voltage in the associated winding (claim 8), wherein a non-inverting input (+ input of P) is connected via a single direction switch (d4) to a free end of a phase (phase B) at a cathode end (cathode of d4); and a latch (D) providing control signals for the circuit, an input of the latch enabled by an enable signal, an output of the latch comprising a back emf voltage detection signal (claim 8), wherein the blocking circuitry and the comparator are duplicated for each of the windings (Col. 7:25-40, claim 8).

Claims 2 and 4: the blocking circuit further comprises: a second diode (D5) with a cathode end connected to the second end; and a resistor (R) with the end connected to an anode end of the second diode (D5) and the other end connected to a DC power Source (Vs).

7. Claims 5-9 are ejected under 35 U.S.C. 102(b) as being anticipated by Yamauchi et al (US 4409526), the claims being read as best understood by the examiner due to the 35USC 112 issues.

Claim 5: A method for controlling a brushless DC motor, wherein the brushless DC motor comprises a rotor (abstract) capable of generating a back electromotive force (it has been held that the recitation that an element is capable of performing a function not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchinson, 69 USPQ 138) the method comprising steps of: determining whether a time of a zero crossing point for the back electromotive force is detected (fig. 7c:P), determining a rotor speed of the brushless DC motor is smaller than a reference speed if the time of the zero crossing point is detected; reducing a frequency of a control signal if the rotor speed is smaller than the reference speed (col. 13:25-33); determining again whether there is a time of a zero crossing point; when the zero crossing is not detected, terminating something

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(col. 8:11-26, 10:47-65, 11:30-37, 12:3-14, the switch circuits are controlled in synchronism with the emf, so if no zero crossing signal is input, no pulse will be input, since the pulses are triggered by the detection of the zero crossing point P. Therefore the reducing of the frequency will not happen), and resetting the frequency of the control signal if the time of the zero crossing point is detected (col. 6:20-49; 10:3-5).

Claim 6: determining a rotor speed of the brushless DC motor is larger than a reference speed if the time of the zero crossing point is detected (Col. 13:18-25).

Claim 8: the signal is a PWM signal (Figs. 7-8)

Claim 9: resetting the frequency to a normal frequency (col. 8:26-30).

Response to Arguments

8. Applicant's arguments filed 10/05/2005 have been fully considered but they are not persuasive. In response to Applicant's argument that Bourgeois et al do not teach a non-inverting input connected via a single direction switch to a free end of a phase at a cathode end, referring to Fig. 5A1, they teach a non-inverting input (+ input of P) connected via a single direction switch (d4) to a free end of a phase (phase B) at a cathode end (cathode of d4). The non-inverting input (+ of P) is connected to a free end of phase B by way of and a resistor (R) and the cathode end of a switch (d4), since the noninverting input (+ of P) is connected to a node of the cathode end of (d4).

Applicant's arguments with respect to claims 5, 6, 8, 9 have been considered but are moot in view of the new ground(s) of rejection. The claims are indefinite and unclear

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed; and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 8 am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2800 ext. 4. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Renata McCloud
Examiner
Art Unit 2837

RDM



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